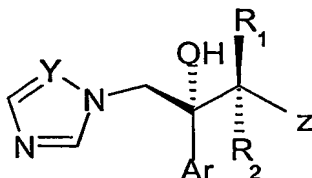


**We Claim:**

1. A compound having the structure of Formula I



Formula I

and its pharmaceutically acceptable salts, esters, enantiomers,  
diastereomers, N-oxides, prodrugs, metabolites, polymorphs and  
pharmaceutically acceptable solvates,

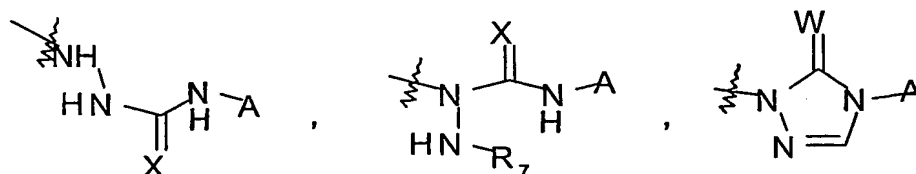
wherein

Ar is phenyl or a substituted phenyl having one to three substituents  
independently selected from halogen (chlorine, fluorine, bromine, iodine),  
nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or  
perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing  
one to four heteroatoms selected from the group consisting of oxygen,  
nitrogen and sulphur;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen,  
straight chain or branched alkyl groups having 1 to 3 carbon atoms selected  
from the group consisting of methyl, ethyl, propyl and isopropyl;

Y is CH or N;

Z is selected from the group consisting of



wherein

X is selected from S, O, CH-NO<sub>2</sub>, and N-CN;

W is selected from S, CH-NO<sub>2</sub>, and N-CN;

A is hydrogen, unsubstituted or substituted lower (C<sub>1-10</sub>) alkyl, said  
 substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  
 (C<sub>1-4</sub>) alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy; optionally  
 substituted naphthyl; unsubstituted or substituted aromatic or non aromatic  
 5 5-6 membered rings with or without one to four heteroatoms independently  
 selected from the group consisting of oxygen, nitrogen and sulphur, said  
 substituents independently selected from one or more groups such as  
 halogen (fluorine, chlorine, bromine, iodine), nitro, cyano, hydroxy, lower (C<sub>1-4</sub>)  
 alkyl, lower(C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy,  
 10 BR<sub>3</sub>, substituted or unsubstituted five or six membered heterocyclic ring  
 systems containing one to four heteroatoms selected from the group  
 consisting of oxygen, nitrogen and sulphur, said heterocyclic substituents  
 being (C<sub>1</sub>-C<sub>8</sub>)alkanoyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkoxy carbonyl, N  
 lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N,N-dilower(C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N-  
 15 lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminothiocarbonyl, N,N-di(lower alkyl)(C<sub>1</sub>-  
 C<sub>4</sub>)aminothiocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, phenyl substituted  
 lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl amino, N,N-di(lower  
 alkyl)(C<sub>1</sub>-C<sub>4</sub>)amino, unsubstituted or substituted phenyl, said substituents  
 being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  
 20 (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy, nitro, cyano,  
 amino, N(R<sub>4</sub>)<sub>2</sub>, 5-6 membered heterocyclic rings, the preferred heterocycles  
 being 1,3-imidazolyl; 1,2,4 triazolyl; -CHR<sub>5</sub>R<sub>6</sub>;

wherein

25 R<sub>3</sub> is a five or six membered aromatic or non aromatic ring with or without  
 heteroatoms selected from the group consisting of oxygen, nitrogen and  
 sulphur;

B is independently selected from (CH<sub>2</sub>)<sub>m</sub>, -S-, -O(CH<sub>2</sub>)<sub>m</sub>, -S(CH<sub>2</sub>)<sub>m</sub>;

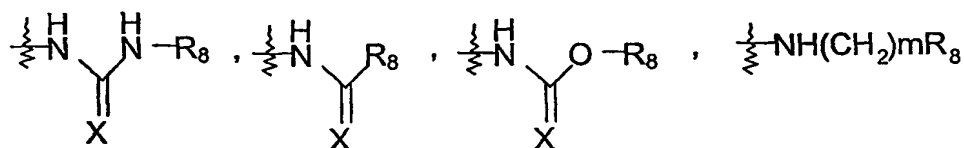
m is an integer from 1 to 4;

R<sub>4</sub> is hydrogen, unsubstituted or substituted lower (C<sub>1-4</sub>)alkyl;

30 R<sub>5</sub> is -COQ, where Q=OR<sub>4</sub>, -N(R<sub>4</sub>)<sub>2</sub>;

R<sub>6</sub> is independently selected from hydrogen, straight chain or branched alkyl with or without substituents, the said substituents being halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower (C<sub>1-4</sub>)alkyl, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; phenyl or phenyl substituted with halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; heterocyclic rings or substituted heterocyclic rings with heteroatoms selected from oxygen, nitrogen and sulphur, substituents on heterocyclic rings are independently selected from halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkyl, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; phenyl or phenyl substituted with halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy or SR<sub>4</sub>; the preferred heterocyclic rings are imidazole and indole;

R<sub>7</sub> is H or selected from the group consisting of



wherein

R<sub>8</sub> is independently selected from hydrogen, unsubstituted or substituted lower (C<sub>1-4</sub>) alkyl, aralkyl, aromatic or non aromatic 5-6 membered rings with or without one to four heteroatoms selected independently from the group consisting of oxygen, nitrogen or sulphur.

2. A compound selected from the group consisting of:

1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-fluorophenyl]thiosemicarbazide

1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2,4-difluorophenyl]thiosemicarbazide

1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-trifluoromethylphenyl]thiosemicarbazide

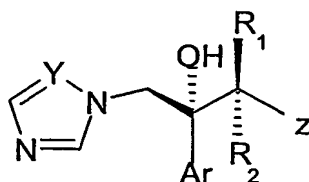
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2,4-dimethoxyphenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4(tetrahydropyranyloxy)phenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-trifluoromethoxyphenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-(2,2,3,3-tetrafluoropropoxy)phenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-nitrophenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-([1,2,3,4-tetrazol-1-yl])phenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-(1,2,3,4-tetrazol-2-yl)phenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-cyanophenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-[4-chlorophenyl]piperizin-1-yl]phenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-(*N,N*-dimethylamino)phenyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-naph-1-yl thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-octylthiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-*t*-butyl thiosemicarbazide
- Methyl-2-[1-*t*-butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]thiosemicarbazid-4-yl]acetate
- Methyl-2-phenyl-2-[1-*t*-butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]thiosemicarbazid-4-yl]acetate
- Methyl-2-[*t*-butyldimethylsilyloxymethyl]-2-[1-*t*-butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]thiosemicarbazid-4-yl]acetate
- Methyl-2-[methylthioethyl]-2-[1-*t*-butoxycarbonyl-2-[(1*R*,2*R*)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]thiosemicarbazid-4-yl]acetate

- Methyl-2-benzyl-2-[1-*t*-butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]thiosemicarbazid-4-yl]acetate
- Methyl-2-*isobutyl*-2-[1-*t*-butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]thiosemicarbazid-4-yl]acetate
- 5 1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2-furanmethyl]thiosemicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2-thiophenmethyl]thiosemicarbazide
- 10 1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-chlorophenyl]semicarbazide
- 1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4(2,2,3,3-tetrafluoropropoxy)phenyl]semicarbazide
- 15 1-*t*-Butoxycarbonyl-2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2,4-dimethoxyphenyl]semicarbazide
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-chlorophenyl]semicarbazide
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-phenyl thiosemicarbazide
- 20 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-hydroxyphenyl] thiosemicarbazide
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-(2,2,3,3-tetrafluoropropoxy)phenyl]thiosemicarbazide
- 25 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2,4-dimethoxyphenyl] thiosemicarbazide
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-trifluoromethylphenyl] thiosemicarbazide
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-trifluoromethoxyphenyl]thiosemicarbazide
- 30 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2-furanmethyl]thiosemicarbazide
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2-thiophenmethyl]thiosemicarbazide
- 35 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[3-chloropyridin-6-yl] thiosemicarbazide
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[5-chloro-3-trifluoromethyl-pyridin-6-yl]thiosemicarbazide
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[quinolin-3-yl] thiosemicarbazide
- 40 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4-[4-(1,2,3,4-tetrazol-1-yl)phenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione

- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4-[4-hydroxyphenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4-[4-(2,2,3,3-tetrafluoropropoxy)phenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4-[4-nitrophenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4[4-(1,2,3,4-tetrazol-2-yl))phenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4-[4-trifluoromethylphenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[4-trifluoromethoxyphenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1,2,4-triazol-1-yl)propyl]-4-[4-cyanophenyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- Methyl-2-[[[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-(2*H*,4*H*)-1,2,4-triazol-3-thion-4-yl]acetate
- Methyl-2-hydroxymethyl-2-[[[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-(2*H*,4*H*)-1,2,4-triazol-3-thion-4-yl]acetate
- Methyl-2-phenyl-2-[[[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-(2*H*,4*H*)-1,2,4-triazol-3-thion-4-yl]acetate
- Methyl-2-isobutyl-2-[[[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-(2*H*,4*H*)-1,2,4-triazol-3-thion-4-yl]acetate
- Methyl-2-methylthioethyl-2-[[[(1R,2R)-2-(2,4-difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-(2*H*,4*H*)-1,2,4-triazol-3-thion-4-yl]acetate
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[2-furanmethyl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[quinolin-3-yl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[3-chloropyridin-6-yl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
- 2-[(1R,2R)-2-(2,4-Difluorophenyl)-2-hydroxy-1-methyl-3-(1*H*-1,2,4-triazol-1-yl)propyl]-4-[5-chloro-3-trifluoromethylpyridin-6-yl]-(2*H*,4*H*)-1,2,4-triazol-3-thione
3. A pharmaceutical composition comprising a compound of claims 1 or 2 and a pharmaceutical acceptable carrier.
4. A pharmaceutical composition comprising a pharmaceutically effective amount of a compound according to claims 1 to 3 or a physiologically

acceptable acid additional salt thereof with a pharmaceutically acceptable carrier.

- 5 5. A method of treating or preventing fungal infection in mammals comprising administering to said mammal a therapeutically effective amount of a compound having the structure of Formula I,



Formula I

and its pharmaceutically acceptable salts, esters, enantiomers, diastereomers, N-oxides, prodrugs, metabolites, polymorphs or pharmaceutically acceptable solvates,

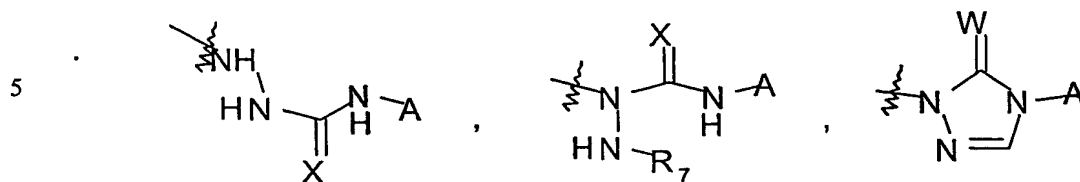
10 wherein

Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing  
15 one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl;

20 Y is CH or N;

Z is selected from the group consisting of



wherein

X is selected from S, O, CH-NO<sub>2</sub>, N-CN;

W is selected from S, CH-NO<sub>2</sub>, N-CN;

15 A is hydrogen, unsubstituted or substituted lower (C<sub>1-10</sub>) alkyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>) alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy; optionally substituted naphthyl; unsubstituted or substituted aromatic or non aromatic 5-6 membered rings with or without one to four heteroatoms independently selected from the group consisting of oxygen, nitrogen and sulphur, said substituents independently selected from one or more groups such as halogen (fluorine, chlorine, bromine, iodine), nitro, cyano, hydroxy, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, BR<sub>3</sub>, substituted or unsubstituted five or six membered heterocyclic ring systems containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur, said heterocyclic substituents being (C<sub>1</sub>-C<sub>8</sub>)alkanoyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkoxy carbonyl, N lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N,N-dilower(C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminothiocarbonyl, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)aminothiocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, phenyl substituted lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl amino, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)amino, unsubstituted or substituted phenyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy, nitro, cyano, amino, N(R<sub>4</sub>)<sub>2</sub>, 5-6 membered heterocyclic rings, the preferred heterocycles being 1,3-imidazolyl; 1,2,4 triazolyl; -CHR<sub>5</sub>R<sub>6</sub>;

20

25

30

35

wherein



$R_3$  is a five or six membered aromatic or non aromatic ring with or without heteroatoms selected from (oxygen, nitrogen and sulphur);

B is independently selected from  $(CH_2)_m$ ,  $-S$ ,  $-O(CH_2)_m$ ,  $-S(CH_2)_m$ ;

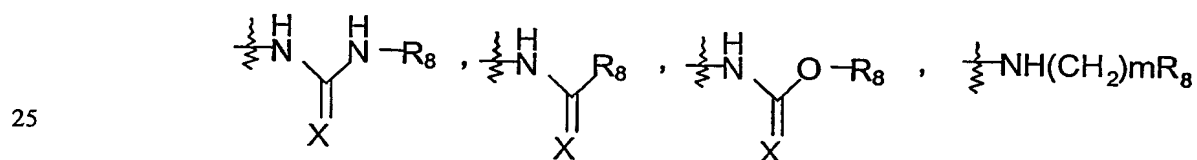
m is an integer from 1 to 4;

5  $R_4$  is hydrogen, unsubstituted or substituted lower  $(C_{1-4})$ alkyl;

$R_5$  is  $-COQ$ , where  $Q=OR_4$ ,  $-N(R_4)_2$ ;

$R_6$  is independently selected from hydrogen, straight chain or branched alkyl with or without substituents, said substituents being halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower  $(C_{1-4})$ alkyl, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$ perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy,  $SR_4$ ; phenyl or phenyl substituted with halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$  perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy,  $SR_4$ ; heterocyclic rings or substituted heterocyclic rings with heteroatoms selected from oxygen, nitrogen and sulphur, substituents on heterocyclic rings are independently selected from halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  $(C_{1-4})$ alkyl, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$ perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy,  $SR_4$ ; phenyl or phenyl substituted with halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$ perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy or  $SR_4$ ; the preferred heterocyclic rings are imidazole and indole;

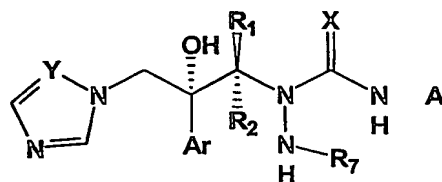
$R_7$  is H or selected from the group consisting of



wherein

$R_8$  is independently selected from hydrogen, unsubstituted or substituted lower  $(C_{1-4})$  alkyl, aralkyl, aromatic or non aromatic 5-6 membered rings with or without one to four heteroatoms selected independently from the group consisting of oxygen, nitrogen or sulphur.

6. A process for preparing a compound of Formula X,



Formula X

and its pharmaceutically acceptable salts, esters, enantiomers, diastereomers, N-oxides, prodrugs, metabolites, polymorphs or pharmaceutically acceptable solvates

wherein

Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl;

Y is CH or N;

X is selected from S, O, CH-NO<sub>2</sub>, N-CN;

A is hydrogen, unsubstituted or substituted lower (C<sub>1-10</sub>) alkyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>) alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy; optionally substituted naphthyl; unsubstituted or substituted aromatic or non aromatic 5-6 membered rings with or without one to four heteroatoms independently selected from the group consisting of oxygen, nitrogen and sulphur, said

substituents independently selected from one or more groups such as halogen (fluorine, chlorine, bromine, iodine), nitro, cyano, hydroxy, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, BR<sub>3</sub>, substituted or unsubstituted five or six membered heterocyclic ring systems containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur, said heterocyclic substituents being (C<sub>1</sub>-C<sub>8</sub>)alkanoyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkoxy carbonyl, N lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N,N-dilower(C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminothiocarbonyl, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)aminothiocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, phenyl substituted lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl amino, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)amino, unsubstituted or substituted phenyl, the said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy, nitro, cyano, amino, N(R<sub>4</sub>)<sub>2</sub>, 5-6 membered heterocyclic rings, the preferred heterocycles being 1,3-imidazolyl; 1,2,4 triazolyl; -CHR<sub>5</sub>R<sub>6</sub>;

wherein

R<sub>3</sub> is a five or six membered aromatic or non aromatic ring with or without heteroatoms selected from (oxygen, nitrogen and sulphur);

B is independently selected from (CH<sub>2</sub>)<sub>m</sub>, -S, -O(CH<sub>2</sub>)<sub>m</sub>, -S(CH<sub>2</sub>)<sub>m</sub>;

m is an integer from 1 to 4;

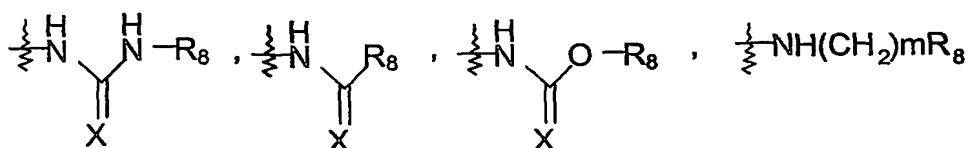
R<sub>4</sub> is hydrogen, unsubstituted or substituted lower (C<sub>1-4</sub>)alkyl;

R<sub>5</sub> is -COQ, where Q=OR<sub>4</sub>, -N(R<sub>4</sub>)<sub>2</sub>;

R<sub>6</sub> is independently selected from hydrogen, straight chain or branched alkyl with or without substituents, said substituents being halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower (C<sub>1-4</sub>)alkyl, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; phenyl or phenyl substituted with halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>;

heterocyclic rings or substituted heterocyclic rings with heteroatoms selected from oxygen, nitrogen and sulphur, substituents on heterocyclic rings are independently selected from halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkyl, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; phenyl or phenyl substituted with halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy or SR<sub>4</sub>; the preferred heterocyclic rings are imidazole and indole;

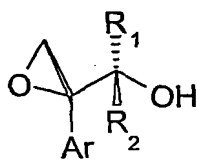
R<sub>7</sub> is H or selected from the group consisting of



wherein

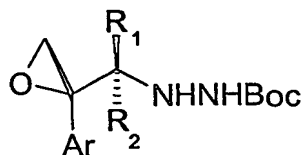
R<sub>8</sub> is independently selected from hydrogen, unsubstituted or substituted lower (C<sub>1-4</sub>) alkyl, aralkyl, aromatic or non aromatic 5-6 membered rings with or without one to four heteroatoms selected independently from the group consisting of oxygen, nitrogen or sulphur,

which comprises converting the epoxy alcohol of Formula II



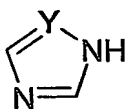
Formula II

to the corresponding triflate derivative, which is further subjected to a nucleophilic substitution with t-butyl carbazate to afford substituted hydrazine of the Formula III



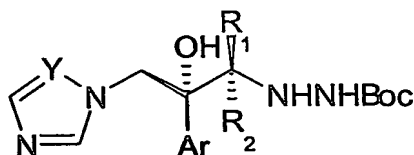
Formula III

with inversion of configuration at C-1, which on reaction with compound of Formula IV,



Formula IV

in the presence of a base gives the epoxide ring opened intermediate of the formula V,



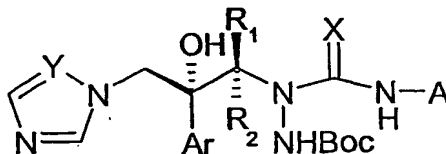
Formula V

which is then treated with the compound of the Formula VI



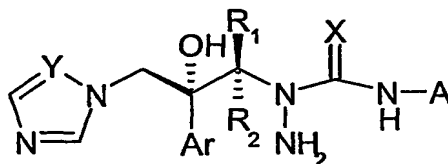
Formula VI

to give the Boc protected semicarbazide or thiosemicarbazide derivatives of the Formula VII,



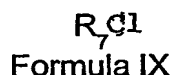
Formula VII

which is further deprotected using trifluoroacetic acid to give the free amine of Formula VIII,



Formula VIII

which is treated with a compound of Formula IX



to give a compound of Formula X.

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7. The process of claim 6 wherein the conversion of the compound of Formula II to the compound of Formula III is carried out in an organic solvent selected from the group consisting of chloroform, dichloromethane, dichloroethane and tetrahydrofuran.

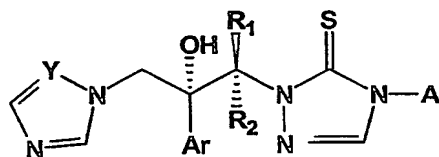
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8. The process of claim 6 wherein the nucleophilic epoxide ring opening of the compound of Formula IV is carried out in the presence of a base selected from the group consisting of potassium carbonate, cesium carbonate, calcium carbonate and sodium hydride.

20

9. The process according to claim 6 wherein the nucleophilic epoxide ring opening of the compound of Formula IV is carried out in a solvent selected from the group consisting of dimethylformamide, dimethylsulfoxide, diethyl ether, tetrahydrofuran, toluene, benzene and mixtures thereof.

10. The process according to claim 6 wherein the reaction of the compound of Formula V with a compound of Formula VI to give a compound of Formula VII is carried out in an organic solvent selected from the group consisting of chloroform, dichloromethane, dichloroethane, and tetrahydrofuran and mixtures thereof.
11. The process according to claim 6 wherein the deprotection of the Boc group in the compound of Formula VII to give the free amine of Formula VIII is carried out in an organic solvent selected from the group consisting of chloroform, dichloromethane, dichloroethane, tetrahydrofuran and mixtures thereof.
12. The process according to claim 6 wherein the reaction of the compound of Formula VIII with a compound of Formula IX to give a compound of Formula X is carried out in an organic solvent selected from the group consisting of chloroform, dichloromethane, dichloroethane, tetrahydrofuran and mixtures thereof.
13. The process according to claim 6 wherein the reaction of the compound of Formula V with the isothiocyanate of Formula XI is carried out in an organic solvent selected from the group consisting of chloroform, dichloromethane, dichloroethane, tetrahydrofuran and mixtures thereof.
14. A process for preparing a compound of Formula XIII,



Formula XIII

- and its pharmaceutically acceptable salts, esters, enantiomers, diastereomers, N-oxides, prodrugs, metabolites, polymorphs and pharmaceutically acceptable solvates,
- wherein

Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl;

Y is CH or N;

A is hydrogen, unsubstituted or substituted lower (C<sub>1-10</sub>) alkyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>) alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy; optionally substituted naphthyl; unsubstituted or substituted aromatic or non aromatic 5-6 membered rings with or without one to four heteroatoms independently selected from the group consisting of oxygen, nitrogen and sulphur, the said substituents independently selected from one or more groups such as halogen (fluorine, chlorine, bromine, iodine), nitro, cyano, hydroxy, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, BR<sub>3</sub>, substituted or unsubstituted five or six membered heterocyclic ring systems containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur, said heterocyclic substituents being (C<sub>1</sub>-C<sub>8</sub>)alkanoyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkoxy carbonyl, N lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N,N-dilower(C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminothiocarbonyl, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)aminothiocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, phenyl substituted lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl amino, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)amino, unsubstituted or substituted phenyl, the said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy, nitro, cyano, amino, N(R<sub>4</sub>)<sub>2</sub>, 5-6 membered heterocyclic rings, the preferred heterocycles being 1,3-imidazolyl; 1,2,4 triazolyl; -CHR<sub>5</sub>R<sub>6</sub>;



wherein

$R_3$  is a five or six membered aromatic or non aromatic ring with or without heteroatoms selected from (oxygen, nitrogen and sulphur);

B is independently selected from  $(CH_2)_m$ ,  $-S$ ,  $-O(CH_2)_m$ ,  $-S(CH_2)_m$ ;

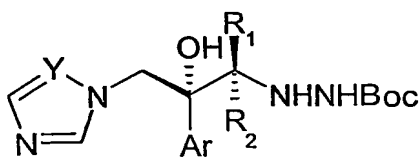
5  $m$  is an integer from 1 to 4;

$R_4$  is hydrogen, unsubstituted or substituted lower  $(C_{1-4})$ alkyl;

$R_5$  is  $-COQ$ , where  $Q=OR_4$ ,  $-N(R_4)_2$ ;

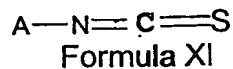
$R_6$  is independently selected from hydrogen, straight chain or branched alkyl with or without substituents, said substituents being halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower  $(C_{1-4})$ alkyl, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$ perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy,  $SR_4$ ; phenyl or phenyl substituted with halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$  perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy,  $SR_4$ ; heterocyclic rings or substituted heterocyclic rings with heteroatoms selected from oxygen, nitrogen and sulphur, substituents on heterocyclic rings are independently selected from halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  $(C_{1-4})$ alkyl, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$ perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy,  $SR_4$ ; phenyl or phenyl substituted with halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower  $(C_{1-4})$ alkoxy, lower  $(C_{1-4})$ perhaloalkyl, lower  $(C_{1-4})$ perhaloalkoxy or  $SR_4$ ; the preferred heterocyclic rings are imidazole and indole,

which comprises treating the compound of formula V

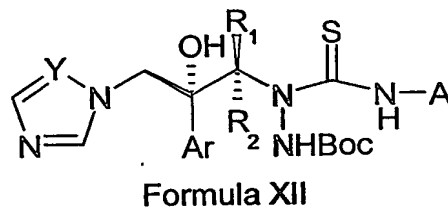


Formula V

with the isothiocyanate of Formula XI

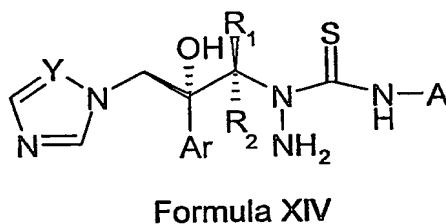


and the resulting BoC derivatives of Formula XII



is refluxed with formic acid to give the desired compound of Formula XIII,

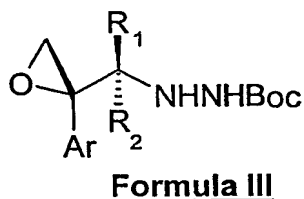
or alternatively, treating the compound of Formula XII with trifluoroacetic acid to get the free amine of Formula XIV,



which upon refluxing with formic acid gives the compound of Formula XIII.

- 10 15. The process according to Claim 14 wherein the reaction of the compound of Formula V with isothiocyanate of Formula XI is carried out in an organic solvent.
16. The process according to Claim 15 wherein the organic solvent is selected from the group consisting of chloroform, dichloromethane, dichloroethane, tetrahydrofuran and mixtures thereof.
- 15 17. The process according to Claim 14 wherein the deprotection of the BoC group in the compound of Formula XII to give the free amine of Formula XIV is carried out in an organic solvent.

18. The process according to Claim 17 wherein the organic solvent is selected from the group consisting of chloroform, dichloromethane, dichloroethane, tetrahydrofuran and mixtures thereof.
19. The process according to Claim 17 wherein the Boc deprotection of the compound of Formula XII is carried out in the presence of trifluoroacetic acid (TFA).
20. The process according to Claim 14 wherein the ring cyclization of the compound of Formula XII or its free amine of Formula XIV is carried out in the presence of formic acid.
21. The process according to Claim 20 wherein the ring cyclization is carried out at a temperature ranging from about 80-120°C.
22. A compound having the structure of of Formula III



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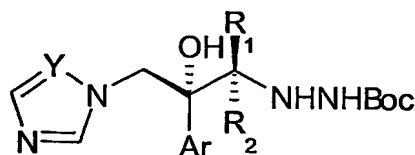
wherein Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur; and

20

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl.

25

23. A compound having the structure of Formula V



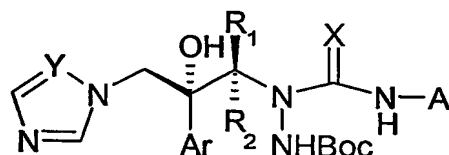
**Formula V**

5 wherein Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or  
10 perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl; and

15 Y is CH or N.

24. A compound having the structure of Formula VII



**Formula VII**

20 wherein Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or  
25 perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

$R_1$  and  $R_2$  are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl;

Y is CH or N;

5 A is hydrogen, unsubstituted or substituted lower ( $C_{1-10}$ ) alkyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower ( $C_{1-4}$ ) alkoxy, lower ( $C_{1-4}$ ) perhaloalkyl, lower ( $C_{1-4}$ ) perhaloalkoxy; optionally substituted naphthyl; unsubstituted or substituted aromatic or non aromatic  
 10 5-6 membered rings with or without one to four heteroatoms independently selected from the group consisting of oxygen, nitrogen and sulphur, said substituents independently selected from one or more groups such as halogen (fluorine, chlorine, bromine, iodine), nitro, cyano, hydroxy, lower ( $C_{1-4}$ ) alkyl, lower ( $C_{1-4}$ ) alkoxy, lower ( $C_{1-4}$ ) perhaloalkyl, lower ( $C_{1-4}$ ) perhaloalkoxy,  $BR_3$ , substituted or unsubstituted five or six membered heterocyclic ring  
 15 systems containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur, said heterocyclic substituents being ( $C_1-C_8$ )alkanoyl, lower ( $C_1-C_4$ )alkyl, lower ( $C_1-C_4$ )alkoxy carbonyl, N lower ( $C_1-C_4$ )alkylaminocarbonyl, N,N-dilower( $C_1-C_4$ )alkylaminocarbonyl, N-lower ( $C_1-C_4$ )alkylaminothiocarbonyl, N,N-di(lower alkyl)( $C_1-C_4$ )aminothiocarbonyl, N-lower ( $C_1-C_4$ )alkyl sulphonyl, phenyl substituted  
 20 lower ( $C_1-C_4$ )alkyl sulphonyl, N-lower ( $C_1-C_4$ )alkyl amino, N,N-di(lower alkyl)( $C_1-C_4$ )amino, unsubstituted or substituted phenyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower ( $C_{1-4}$ )alkoxy, lower ( $C_{1-4}$ ) perhaloalkyl, lower ( $C_{1-4}$ ) perhaloalkoxy, nitro, cyano,  
 25 amino,  $N(R_4)_2$ , 5-6 membered heterocyclic rings, the preferred heterocycles being 1,3-imidazolyl; 1,2,4 triazolyl;  $-CHR_5R_6$ ;

wherein

$R_3$  is a five or six membered aromatic or non aromatic ring with or without heteroatoms selected from the group consisting of oxygen, nitrogen and  
 30 sulphur;

B is independently selected from  $(CH_2)_m$ ,  $-S$ ,  $-O(CH_2)_m$ ,  $-S(CH_2)_m$ ;

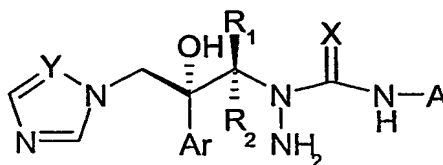
m is an integer from 1 to 4;

R<sub>4</sub> is hydrogen, unsubstituted or substituted lower (C<sub>1-4</sub>)alkyl;

R<sub>5</sub> is -COQ, where Q=OR<sub>4</sub>, -N(R<sub>4</sub>)<sub>2</sub>; and

R<sub>6</sub> is independently selected from hydrogen, straight chain or branched alkyl with or without substituents, the said substituents being halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower (C<sub>1-4</sub>)alkyl, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; phenyl or phenyl substituted with halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; heterocyclic rings or substituted heterocyclic rings with heteroatoms selected from oxygen, nitrogen and sulphur, substituents on heterocyclic rings are independently selected from halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>)alkyl, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy, SR<sub>4</sub>; phenyl or phenyl substituted with halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>)perhaloalkyl, lower (C<sub>1-4</sub>)perhaloalkoxy or SR<sub>4</sub>; the preferred heterocyclic rings are imidazole and indole.

25.A compound having the structure of Formula VIII



Formula VIII

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wherein Ar is phenyl or a substituted phenyl having one to three substituents independently selected from halogen (chlorine, fluorine, bromine, iodine), nitro, cyano, lower(C<sub>1-4</sub>)alkyl, lower(C<sub>1-4</sub>)alkoxy, perhalo lower(C<sub>1-4</sub>)alkyl or perhalo lower(C<sub>1-4</sub>)alkoxy five to seven membered heterocyclic ring containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

25

R<sub>1</sub> and R<sub>2</sub> are independently selected from the group consisting of hydrogen, straight chain or branched alkyl groups having 1 to 3 carbon atoms selected from the group consisting of methyl, ethyl, propyl and isopropyl;

Y is CH or N;

5 X is selected from S, O, CH-NO<sub>2</sub>, and N-CN;

A is hydrogen, unsubstituted or substituted lower (C<sub>1-10</sub>) alkyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower (C<sub>1-4</sub>) alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy; optionally substituted naphthyl; unsubstituted or substituted aromatic or non aromatic  
10 5-6 membered rings with or without one to four heteroatoms independently selected from the group consisting of oxygen, nitrogen and sulphur, said substituents independently selected from one or more groups such as halogen (fluorine, chlorine, bromine, iodine), nitro, cyano, hydroxy, lower (C<sub>1-4</sub>) alkyl, lower(C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy,  
15 BR<sub>3</sub>, substituted or unsubstituted five or six membered heterocyclic ring systems containing one to four heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur, said heterocyclic substituents being (C<sub>1</sub>-C<sub>8</sub>)alkanoyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkyl, lower (C<sub>1</sub>-C<sub>4</sub>)alkoxy carbonyl, N lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N,N-dilower(C<sub>1</sub>-C<sub>4</sub>)alkylaminocarbonyl, N-  
20 lower (C<sub>1</sub>-C<sub>4</sub>)alkylaminothiocarbonyl, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)aminothiocarbonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, phenyl substituted lower (C<sub>1</sub>-C<sub>4</sub>)alkyl sulphonyl, N-lower (C<sub>1</sub>-C<sub>4</sub>)alkyl amino, N,N-di(lower alkyl)(C<sub>1</sub>-C<sub>4</sub>)amino, unsubstituted or substituted phenyl, said substituents being halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  
25 (C<sub>1-4</sub>)alkoxy, lower (C<sub>1-4</sub>) perhaloalkyl, lower (C<sub>1-4</sub>) perhaloalkoxy, nitro, cyano, amino, N(R<sub>4</sub>)<sub>2</sub>, 5-6 membered heterocyclic rings, the preferred heterocycles being 1,3-imidazolyl; 1,2,4 triazolyl; -CHR<sub>5</sub>R<sub>6</sub>;

wherein

R<sub>3</sub> is five or six membered aromatic or non aromatic ring with or without  
30 heteroatoms selected from the group consisting of oxygen, nitrogen and sulphur;

B is independently selected from  $(\text{CH}_2)_m$ ,  $-\text{S}$ ,  $-\text{O}(\text{CH}_2)_m$ ,  $-\text{S}(\text{CH}_2)_m$ ;

m is an integer from 1 to 4;

$\text{R}_4$  is hydrogen, unsubstituted or substituted lower  $(\text{C}_{1-4})$ alkyl;

$\text{R}_5$  is  $-\text{COQ}$ , where  $\text{Q}=\text{OR}_4$ ,  $-\text{N}(\text{R}_4)_2$ ; and

5  $\text{R}_6$  is independently selected from hydrogen, straight chain or branched alkyl with or without substituents, the said substituents being halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower  $(\text{C}_{1-4})$ alkyl, lower  $(\text{C}_{1-4})$ alkoxy, lower  $(\text{C}_{1-4})$ perhaloalkyl, lower  $(\text{C}_{1-4})$ perhaloalkoxy,  $\text{SR}_4$ ; phenyl or phenyl substituted with halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  
10  $(\text{C}_{1-4})$ alkoxy, lower  $(\text{C}_{1-4})$  perhaloalkyl, lower  $(\text{C}_{1-4})$ perhaloalkoxy,  $\text{SR}_4$ ; heterocyclic rings or substituted heterocyclic rings with heteroatoms selected from oxygen, nitrogen and sulphur, substituents on heterocyclic rings are independently selected from halogen (fluorine, chlorine, bromine, iodine), hydroxy, lower  $(\text{C}_{1-4})$ alkyl, lower  $(\text{C}_{1-4})$ alkoxy, lower  $(\text{C}_{1-4})$ perhaloalkyl, lower  
15  $(\text{C}_{1-4})$ perhaloalkoxy,  $\text{SR}_4$ ; phenyl or phenyl substituted with halogen (e.g. fluorine, chlorine, bromine or iodine), hydroxy, lower  $(\text{C}_{1-4})$ alkoxy, lower  $(\text{C}_{1-4})$ perhaloalkyl, lower  $(\text{C}_{1-4})$ perhaloalkoxy or  $\text{SR}_4$ ; the preferred heterocyclic rings are imidazole and indole.